Meridian 1 and Succession Communication Server for Enterprise 1000

DASS2

Features and Services Guide

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About this document

This document applies to Meridian 1 Internet Enabled and Succession Communication Server for Enterprise (CSE) 1000 systems.

This document is a global document. Contact your systems supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

The DASS2 Features and Services Guide is part of the suite of Nortel Networks Technical Publications (NTPs) designed specifically for DASS2 applications.

This guide describes DASS2 features and defines the procedures to be followed when administering the overlay programs that are required for these features and other basic DASS2 capabilities.

Who should use this document

The intended audience of the DASS2 Administration Guide is network data administrators and technicians responsible for administering DASS2 connections.

How this document is organized

The DASS2 Features and Services Guide has been arranged in a procedural format, providing information on how to configure basic DASS2 capabilities and features.

This document is broken down into the following sections:

- *Configuring basic DASS2 capabilities and features* - describes the procedures required to configure basic DASS2 capabilities, such as defining DCHI, PRI loop number, and data blocks for a DASS2 link.

- *DASS2 features* - this section begins a series of chapters devoted to specific DASS2 features. Each feature contains a description and instructions for implementation.
- *Traffic monitoring procedures* - provides a reference to the NTP that contains information pertaining to Traffic monitoring procedures

Configuring basic DASS2 capabilities

Contents

This section contains information on the following topics:

Reference list 9
Configuration note pertaining to port addressing modes 10
Implementation of basic DASS2 capabilities 13
Configuring Call Charging Information 23
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Table 1 on page 10 outlines the steps required to configure basic DASS2 capabilities.

Note: Please note the difference in configuration requirements in LD 17 for DASS2 systems running on software up to and including Group G, and systems running on software up to and including Group H. Refer to the “Configuration note pertaining to port addressing modes” on page page 10.

Reference list

The following are the references in this section:

- *DPNSS1: Installation Guide* (553-3921-200)

Table 1
Configuring DASS2 capabilities

Step	Overlay	Action
1	LD 17 Configuration Record	Group G and earlier Configure DASS2 D-channel port number for the NT5K35 DCHI, or the NT5K75 DCHI or NT6D11AE operating in standard mode. This is the number used to reference the D-channel in LD 74; the value is entered against the **DCHI** prompt, and is in the range of 0-15. Configure PRI loop number Group H and later Configure the DASS2 D-channel port number, which is a logical port number independent of the actual I/O port address. This is the number used to reference the D-channel in LD 74; the value is entered against the **ADAN** prompt, and is in the range of 0-63. Configure PRI loop number
2	LD 73 Digital Data Block	Define clock synchronization control.
3	LD 74 DDSL Data Block	Define the data blocks used for the DASS2 protocols.
4	LD 15 Customer Data Block	Define a DASS2 customer.
5	LD 16 Route Data Block	Create the service routes to be used.
6	LD 14 Trunk Data Block	Create the channels within the service routes.
7	LD 75 IDA Trunk Maintenance	Bring the DASS2 link into service.

Configuration note pertaining to port addressing modes

There is a distinction between Group G and Group H functionality regarding port addressing modes.

Group G and earlier

Standard address mode (0-15) can be any of the following:

- DPNSS1 (DDSL)

- DASS2 (DDSL)
- APNSS (LSSL)
- Q931 (DCHI)
- ISL (DCHI)
- SDI
- ESDI

Expanded address mode (0-159) can be either of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)

The expanded mode addressing has no impact on the standard mode addressing; that is, DASS2 D-channel (DDSL) 7 in the expanded mode can exist with the Q931 D-channel (DCHI) 7 in the standard mode.

Theoretically, it is possible to have 160 DASS2 D-channels and 16 other I/O devices. In practise, however, there is a limit of 40 addresses in expanded mode and 16 in standard mode, for a total of 56 addresses.

The port address numbers assigned to the NT5K75 and NT6D11AE operating in expanded mode must not conflict with addresses assigned to other I/O port types. To avoid potential conflicts and to simplify system configuration, it is recommended that, in the expanded mode, the port addresses for the NT5K75 and NT6D11AE avoid the standard mode range (0-15) and be numbered in the range 16-159 instead.

Group H and later

Standard address mode (0-15) can be any of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)
- APNSS (LSSL)
- Q931 (DCHI)
- ISL (DCHI)

- SDI
- ESDI

If the MSDL is used, standard mode can have a range of 0-63, and can be any of the following:

- Q931 (DCHI)
- ISL (DCHI)
- ESDI

Expanded address mode (0-159) can be either of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)

The expanded mode addressing has no impact on the standard mode addressing; that is, DASS2 D-channel (DDSL) 7 in the expanded mode can exist with the Q931 D-channel (DCHI) 7 in the standard mode.

Theoretically, it is possible to have 64 addresses using the MSDL with Q931, ISDL, or ESDI, plus 160 addresses using the expanded mode for DASS2 for a total of 224 addresses. In practise, however, there is a limit of 64 addresses using MSDL with Q931, ISDL, or ESDI, plus 40 addresses using the expanded mode for DASS2, for a total of 104 addresses.

Presently, MSDL does not support SDI ports on DASS2, so the likely configuration would involve a mixture of standard mode addressing, MSDL addressing, and expanded mode addressing for DASS2. Such an example could be as follows:

0-7 (8 addresses) in the standard mode;

8-15 (32 addresses) in the MSDL mode;

16-55 (40 addresses) in the expanded mode.

The port address numbers assigned to the NT5K75 and NT6D11AE operating in expanded mode must not conflict with addresses assigned to other I/O port types. To avoid potential conflicts and to simplify system configuration, it is recommended that, in the expanded mode, the port addresses for the NT5K75 and NT6D11AE avoid the standard mode range (0-15) and be numbered in the range 16-159 instead.

Implementation of basic DASS2 capabilities

Note: The prompts have been presented according to Group G and Group H requirements.

LD 17 – Configure the DASS2 DCHI, and the PRI loop number up to and including Group G software, for the NT5K35 and for the NT5K75 and NT6D11AE operating in standard mode

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	CFN	Configuration data block.
DPNS	YES	Allow next prompt.
DCHI	0-15	The DASS2 D-channel port number, for DCHIs operating in standard mode using an SDI port address. This number is used to reference the D-channel in LD 74.
.....		
PARM	YES	To allow changes to the system buffers.
.....		
DTIB	35-1000	Size of IDA trunk input buffers for entire system (determined according to traffic). ***Note:*** The system must be initialized to invoke changes to DTIB.
DTOB	4-1000	To define the number of IDA trunk output buffers per DCHI (determined according to traffic). ***Note:*** The system must be initialized to invoke changes to DTOB.
.....		
CEQU	YES	To allow changes to the Common Equipment parameters.

.....		
DDCS	0-159	The PRI loop number for the new DASS2 link. Enter multiples separated with a space. ***Note:*** PRI loop numbers may have to be even values if the adjacent loop on the network card is programmed.

LD 17 – Configure the DASS2 DCHI, and the PRI loop number. (If the NT5K75 or NT6D11AE DCHI is used in expanded mode)

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	CFN	Configuration data block.
.....		
PARM	YES	To allow changes to the system buffers.
.....		
DTIB	35-1000	To define the number of trunk input buffers for the entire system.
DTOB	4-100	To define the number of trunk output buffers per DCHI.
.....		
CEQU	YES	To allow changes to the Common Equipment parameters.
.....		
DDCS	0-159	The PRI loop number for the new DASS2 link. Enter multiples separated with a space. ***Note:*** PRI loop numbers may have to be even values if the adjacent loop on the network card is programmed.

LD 17 – Configure the DASS2 DCHI, and the PRI loop number.(Up to and including Group H software)

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	CFN	Configuration data block.
ADAN	0-63	The DASS2 D-channel port number. This is a logical port number, independent of the hardware I/O addresses. This number is used to reference the D-channel in LD 74.
CTYP	DCHI	Selects the card type as being DCHI.
DNUM	0-15	The hardware I/O address of the DCHI. The switches on the DCHI must be set to correspond to this address.
DPNS	YES	Indicates that the DCHI is being used for DASS2.
PARM	YES	To allow changes to the system buffers.
.....		
DTIB	35-1000	Size of IDA trunk input buffers for entire system (determined according to traffic). ***Note:*** The system must be initialized to invoke changes to DTIB.
DTOB	4-100	To define the number of IDA trunk output buffers per DCHI (determined according to traffic). ***Note:*** The system must be initialized to invoke changes to DTOB.
.....		
CEQU	YES	To allow changes to the Common Equipment parameters.
.....		
DDCS	0-159	The PRI loop number for the new DASS2 link. Enter multiples separated with a space. ***Note:*** PRI loop numbers may have to be even values if the adjacent loop on the network card is programmed.

LD 73 – Define clock synchronization control.

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	PRI2	2.0 Mb/s PRI.
FEAT	SYTI	Digital system timers.
PREF CK0	0-159	The primary reference loop numbers for clock controller 0.
PREF CK1	0-159	The primary reference loop numbers for clock controller 1
SREF CK0	0-159	The secondary reference loop numbers for clock controller 0.
SREF CK1	0-159	The secondary reference loop numbers for clock controller 1.
		Notes: LD 73 must be run to set values. To remove a reference loop and return to free run, enter X. To leave a reference loop unchanged, enter <cr>. To enable synchronization, set the tracking LD 60. To track on a primary or secondary reference clock, the command is: TRCK PCK (for Primary) SCK (for Secondary) FRUN (for Free-Run) The Clock Controller will be in free-run mode when enabled. It should stay in this mode for several minutes before being switched to tracking mode.

LD 74 – Define the data blocks used for the DASS2 protocols.

Prompt	Response	Description
REQ	NEW CHG OUT PRT END	Create new data base, modify existing data base, remove data block, print data block, terminate program activity
TYPE	DDSL	Digital Signaling Link

Prompt	Response	Description
S2	(0)1	DCHI switch setting If the NT5K35 is used, then set S2 to 0; If the NT5K75 or NT6D11AE is used: set S2 to 0 for standard mode addressing; set S2 to 1 for expanded mode addressing.
DDSL		The D-channel port number, entered in LD 17.
	Group G	
	0-15	If 0 entered to S2 prompt;
	16-159	If 1 entered to S2 prompt.
	Group H	
	0-63	If 0 entered to S2 prompt;
	16-159	If 1 entered to S2 prompt.
SIGL	DA	DASS2 digital signaling.
DDCS	0-159	Loop number used for the PRI link.
PRIV	NO	DASS2 is a public exchange link.
SIDE	BNT	BNT end of a DASS2 link

Prompt	Response	Description
FLOW CNTL	YES (NO)	Change flow control parameters. Flow control is used to control the number of messages that are sent across a DASS2 link when using user to user or TIE line signaling features. N = the number of messages that can be sent X = the value of BRST PARM Y = the value of REPL PARM On call set up, N = X. On every message sent, N = N - 1 Every 10 seconds, N = N + Y N can never be greater than X X must be equal to or greater than Y If N = 0, no messages can be sent. Must be set to NO if user to user or TIE line signaling are not used.
BRST PARM	0 4 8 16 32	Enter the flow control burst parameter set on the public network. Prompted only if FLOW CNTL =YES.
REPL PARM	1 2 4 8	Enter the flow control replenishment parameter set on the public network. This is only prompted if FLOW CNTL =YES.
CNTL	YES (NO)	YES = change DASS2 link parameters. NO = use default parameters.

Prompt	Response	Description
ALRM	TBF PP MM CC FAE PP MM CC HER PP MM CC TSF PP MM CC AIS PP MM CC LOI PP MM CC DAI PP MM CC	Enter the desired persistence time (PP), monitor time (MM), and repeat count threshold (CC) for one of the seven types of alarms. The alarm condition thresholds are shown in the table that follows.
CNTR	0- 255 (CRT) (TMT) (SCT)	Only prompted if CNTL=YES. Enter the desired threshold for one of the three counters in the range 0-254. If 255 is entered, the threshold is set to infinity. The defaults are: CRT (channel reset threshold) 120 TMT (test message threshold) 50 SCT (stop count threshold) 20

Table 2 on page 19 lists the alarm condition thresholds that pertain to the ALRM prompt in LD 74.

Table 2
Alarm condition thresholds for the ALRM prompt

Alarm Mnemonic	PP	MM	CC
TBF	0-15 secs (5)	0-24 hrs (0)	0-15 (1)
FAE	0-15 secs (2)	0-24 hrs (1)	0-15 (4)
HER	0-15 mins (1)	0-24 hrs (1)	0-15 (10)
TSF	0-15 secs (0)	0-24 hrs (0)	0-15 (0)
AIS	0-15 mins (1)	0-24 hrs (1)	0-15 (4)
LOI	0-15 secs (0)	0-24 hrs (0)	0-15 (0)
DAI	1-15 mins (1)	0-24 hrs (1)	0-15 (5)

LD 15 – Define a DASS2 customer.

Prompt	Response	Description
REQ:	NEW, CHG	Add, or Change
TYPE:	CDB	Customer Data Block
CUST	XX	Customer number from 0 to 99.
....		
LSC	dddd	Enter the location number that identifies this PBX.
TIDM	YES/(NO)	Enter YES if the Trunk Group reference number of a Trunk Identity is meaningful (as part of the CDP DN). Enter NO if the PBX reference number is to be displayed without the Trunk Group Reference Number.
DASC	1-4	Enter the access code that is to be placed on displays before OLIs and TLIs received from the DASS2 trunk. Entering the attendant's DN will remove an existing value. The value defaults to nothing if <cr> is entered.

LD 16 – Create the service routes.

Prompt	Response	Description
REQ	NEW CHG OUT PRT END	Create new data base, modify existing data base, remove data block, print data block, terminate program activity.
TYPE	RDB	Route Data Block.
CUST	XX	Customer number.
ROUT	0-511	Route number.
TKTP	IDA	The trunk type (DASS2).

Prompt	Response	Description
SIGL	DPN DAS	Level 3 signaling. Enter DAS for DASS2 signaling.
....		
ICOG	IAO ICT OGT	Defines the route as both incoming and outgoing. Defines the route as incoming only. Defines the route as outgoing only.
....		
LID	(0)-2	The option number for ISDN Line Identities. This is only prompted if the IDC package is equipped. 0 - do not send 1 - send 2 - convert and send
LCNO	0-255	The tree number to be used for converting Line Identities.
....		
DTOS	YES/(NO)	Enter YES if dial tone is required from the public exchange when an outgoing DASS2 trunk is seized.
TIDY	xxxx xxxx	The Trunk Identity (that is, the four-digit PBX Reference Number, followed by the four-digit Trunk Group Reference Number.)

LD 14 – Create the channels within the service routes.

Prompt	Response	Description
REQ	NEW CHG OUT PRT END	Create new data base, modify existing data base, remove data block, print data block, terminate program activity. NEW and OUT may be followed by the number of channels being initialized (1-30)
TYPE	RDC	Real Digital Channel
TN	lll c	Terminal Number loop number (0-159) and channel number (1-15/17-31) for Real channel.

Prompt	Response	Description
DDSL		The D-channel port number, entered in LD 17.
	Group G	
	0-15	If the NT5K35 DCHI is used, or if the NT5K75 or NT6D11AE DCHI is used and is set in normal mode;
	16-159	If NT5K75 or NT6D11AE DCHI is set in expanded mode.
	Group H	
	0-63	If the NT5K35 DCHI is used, or if the NT5K75 or NT6D11AE DCHI is used and is set in normal mode;
	16-159	If NT5K75 or NT6D11AE DCHI is set in expanded mode.
SIGL	DAS	DASS2 channel
CUST	XX	Customer number
....		
RTMB	XX YY	Route and member number
INC		Applies when creating members in data blocks.
	(YES)	If YES, channel numbers will be associated with members starting at the TN, both channel and member numbers increasing.
	NO	If NO, member numbers decrease as channel numbers increase.
PRIO	(XHP)	High priority on channel seizure.
	YLP	Low priority on channel seizure.
		The high/low priority must be different at each end.

Note: The NT8D72BA PRI card is required to support EuroISDN applications, and should be set to 120 ohm impedance. For more information on NT8D72BA switch settings, see the *DPNSS1: Installation Guide* (553-3921-200).

LD 75 - Bring the DASS2 link into service

Step	Action	Response
1	Enable all PRI loops: ENL DDCS l	 ENBL
2	Enable the DCHI: ENL DDSL n	 ENBL IDLE (DCHI enabled, but all channels are disabled)
3	Enable the D-channels: STRT n Both ends of the link should be started within 5 minutes of each other.	 ENBL STARTING (the configured D-channels are being enabled) ENBL ACTIVE (the configured D-channels are enabled)

Configuring Call Charging Information

To obtain the call charge information on the Meridian 1 CDR output for an outgoing DASS2 call, message registration must be configured in “LD 16 – Modify the Route Data Block.” on page 23.

Note: The Public Exchange must also be able to provide call charge information.

LD 16 – Modify the Route Data Block.

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	RDB	Route Data Block.
...	...	...
MR	XLD	Non-buffered message registration is used.
....		

Configuring Calling Line Identity

Calling Line Identity for DASS2 is configured by defining the ISDN line identities in LD 16.

LD 16 – Modify the Route Data Block.

Prompt	Response	Description
REQ	CHG	Modify existing data base.
TYPE	RDB	Route Data Block.
...	...	...
LID	(0)-2	Option number for ISDN Line Identities 0 — do not send 1 — send 2 — convert and send
LCNO	0-255	Enter tree number to be used for converting Line Identities.
...		

Note: If an Incoming Digit Conversion (IDC) table is used to convert the public number dialed to an extension/DN, when sending the calling line ID to the public network, the reverse must take place. That is, if incoming dialed digits from the public exchange are 3572, then an IDC table is required to route the call to extension 2572.

DCNO xxx

IDGT
3572 2572

The reverse is then required to send the public number to the public network.

LCNO xxx

IDGT
2572 3572

Attendant Through Dialing Networkwide

Contents

This section contains information on the following topics:

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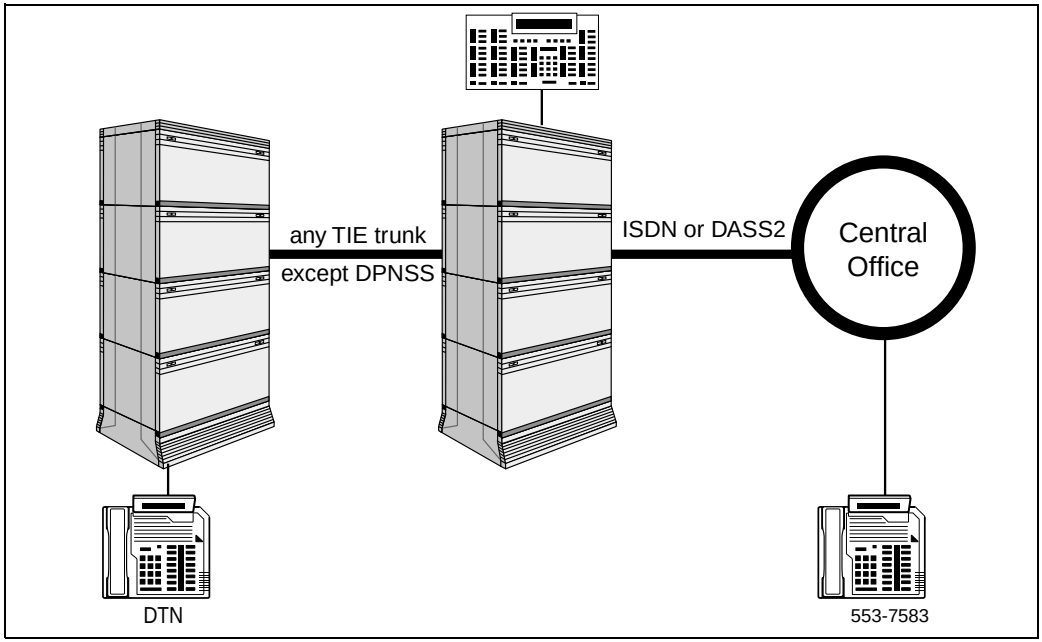
Attendant Through Dialing Networkwide extends the functionality of through dialing with an attendant to any Integrated Services Digital Network (ISDN) or DASS2 outgoing trunk. This feature allows an attendant to seize an outgoing Integrated Services Digital Network (ISDN) or DASS2 trunk for a calling party located on the same or another node.

Figure 1 on page 26 illustrates Attendant Through Dialing Networkwide.

Figure 1
Attendant Through Dialing Networkwide



In the existing standalone capacity, Attendant Through Dialing allows internal callers to request an outgoing trunk except DPNSS from an attendant. In the existing network capacity, Attendant Through Dialing allows callers linked by any TIE trunk to request an analog or DTI2 trunk from the attendant.

When requested, the attendant dials a specific code and extends the call once the Destination (DEST) lamp lights. When the attendant accessed the trunk, the caller was free to dial out. However, with standalone Attendant Through Dialing, the outgoing trunk seized must be either an analog or digital trunk. Attendant Through Dialing Networkwide enhances the through dialing networkwide capability to ISDN or DASS2 outgoing trunks.

When this feature is provisioned, an attendant seizes the outgoing trunk by pressing the Release (RLS) key. Following this, the call is extended back to the calling party who receives dial tone and dials the remaining digits.

This feature is applicable in situations where the calling party is not permitted to dial a defined code that provides access to a public or international network or other costly telecom services. In these situations, the calling party requests that the attendant dial a numbering plan for the calling party, seize an external trunk and extend the call back to the calling party. Table 3 on page 27 shows situations when the attendant is allowed to press the Release (RLS) key depending on the type of numbering plan implemented by a customer.

Table 3
Numbering Plans and Attendant Release of external trunk

Numbering Plan used to seize external trunk	Destination (DEST) becomes lit
Route Access Code	After Route Access Code
Flexible Numbering Plan	After Special Number
Coordinated Dialing Plan	After Trunk Steering Code

Operating parameters

This feature supports all ISDN trunk types on Basic Rate Interface (BRI) and Primary Rate Interface (PRI). Attendant Through Dialing Networkwide is also supported over analog, DTI, and DIT2 trunks.

The Attendant Through Dialing Networkwide feature is not supported over DPNSS. Therefore, an established link cannot be a DPNSS trunk if the outgoing trunk is ISDN or DASS2.

Attendant Through Dialing Networkwide is configured to override/bypass Access Restrictions configured as New Flexible Code Restrictions. Other access restrictions such as Access Restrictions, Scheduled Access Restrictions and Trunk Barring are not affected by Attendant Through Dialing Networkwide.

This feature is not supported on sets configured with Dial Pulse (CLS = DIP). Attendant Through Dialing Networkwide is only supported on sets configured with Digitone (CLS = DTN).

Attendant Through Dialing Networkwide is available on all types of dialing configurations on ISDN routes, Enbloc, or Overlap Signaling. However, if the attendant dials a Trunk Steering Code or Special Number, the outgoing ISDN trunk must support Overlap Signaling.

If an attendant dials a Trunk Steering Code or Special Number over an ISDN trunk connected to a Central Office/Public Exchange, the outgoing trunk must support Overlap Signaling.

Attendant Through Dialing Networkwide allows a caller to bypass all trunk access restrictions at the set level. Once a caller begins dialing, an external number, the digits dialed are not analyzed for Access Restrictions, Call Connection Restrictions.

An attendant cannot extend a call back to a caller after dialing an Electronic Switched Network (ESN) access code (AC1/AC2) even if a tone is detected. The route being used is unknown at this time. Therefore, if the access code to the public network is defined as AC1 or AC2, the attendant must dial additional digits, such as a Special Number, before being allowed to press the Release key.

The Attendant Through Dialing Networkwide feature is not supported if the outgoing trunk on the attendant's node is a Virtual Network Service (VNS) trunk.

When a calling party requests through dialing, their set display is updated. The called party's display receives the attendant's name or number and maintains this information throughout the duration of the call.

Feature interactions

Autodial

Attendant Through Dialing Networkwide supports Autodial provided that the stored Autodial number excludes the digits previously dialled by an Attendant.

Call Detail Recording

The record on the outgoing trunk node shows the outgoing trunk in the terminating ID field.

No record is output on the Attendant's node for the Destination (DEST) side during call extension. This occurs regardless of the configuration for the outgoing trunk. All other records are produced according to configuration.

If the Calling Line Identification (CLID) option is activated in the Call Detail Recording, the calling party's Directory Number (DN) is printed in the Attendant's node.

If End-to-End Signaling is used to establish a link, the ECDR prompt in LD 15 can be used to print End-to-End Signaling digits in the CDR record.

ISDN QSIG/EuroISDN Call Completion

The Call Completion to Busy Subscriber and the Call Completion on No Reply functionalities are not supported if an external call is initiated by the Attendant Through Dialing Networkwide feature.

Last Number Redial

Last Number Redial is not supported when the attendant extends a call back and the caller begins dialing digits.

Network Attendant Service

Network Attendant Service can be used on the Meridian Customer Defined Network (MCDN) to automatically locate an attendant from one node to another.

When Attendant Through Dialing Networkwide is provisioned, the Attendant's Destination (DEST) lamp is updated after dialing Route Access Code, Trunk Steering Code or Special Number rather than waiting for the ALERTING message.

Pretranslation

Pretranslation is supported during the attendant dialing phase. The attendant dials a pretranslated digit in the Trunk Steering Code, Route Access Code or Special Number to seize an external trunk. Pretranslation is not supported in the through dialing phase. Therefore, once the attendant extends the call back to the caller, the first digit the calling party dials is not pretranslated even if the calling party has pretranslation configured.

Recovery on Misoperation of the Attendant Console

The Attendant Through Dialing feature allows the attendant to press the RLS (Release) key or another Loop key when the called is party is ringing without misoperating the console.

Speed Call

Speed Call is only supported in the attendant dialing phase. Speed Call is not supported once the caller begins dialing an external number. Once an external call is established, the caller cannot press the SCU (Speed Call User) key.

Stored Number Redial

Digits dialed by the caller using End-to-End Signaling are not retained by the Stored Number Redial feature.

Feature packaging

Attendant Through Dialing Networkwide requires the following packages:

- End-to-End Signaling (EES) package 10
- Integrated Services Digital Network (ISDN) package 145
- Overlap Signaling (OVLP) package 184
- New Format Call Detail Recording (FCDR) package 234

Attendant Through Dialing Networkwide also requires ***one*** of the following dialing plans:

- Flexible Number Plan (FNP) package 160
- Coordinated Dialing Plan (CDP) package 59
- Basic Automatic Route Selection (BARS) package 57
- Network Alternate Route Selection (NARS) package 58

Feature implementation

LD 15 – Allow Attendant Through Dialing Networkwide.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	ATT	Attendant Console data block.
CUST	xx	Customer number.
OPT	(ATDA)	Attendant Through Dialing Allowed (default). ATDD = Attendant Through Dialing Denied.

Note: The configuration of Improved End-to-End Signaling in LD 15 and Calling Line Identification in the Call Detail Recording Record are optional. Improved End-to-End Signaling sends the digits dialed by the calling party on the established link in a more efficient manner than End-to-End Signaling. A Call Detail Recording record on the outgoing trunk node shows the outgoing trunk in the ID field and the calling Directory Number in the CLID field if the outgoing trunk is on the attendant's node.

LD 15 – Configure Improved End-to-End Signaling.

Note: In Release 19 and later, Improved End-to-End Signaling is provided when EEST = YES and DTMF = NO.

Prompt	Response	Description
REQ:	CHG	Change existing data.
TYPE:	FTR	Customer Features and options.
CUST	xx	Customer number.
...		

EEST	YES	Send feedback tone to the originator of End-to-End Signaling.
- DTMF	NO	For Release 19 and later, use Improved End-to-End Signaling for single tone feedback.

LD 17 – Allow Calling Line Identification (CLID) field in Call Detail Recording (CDR) records.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	PARM	System parameters.
...		
- FCDR	 (OLD) NEW	Format for Call Detail Recording OLD CDR format (default). NEW CDR format.
...		
- CLID	YES	Calling Line Identification in Call Detail Recording.

Feature operation

Attendant Through Dialing Networkwide operates under the following parameters:

1 Calling party dials an attendant that is located either on the same node as the caller or another node.

2 Calling party requests the attendant to seize an outgoing external trunk. This external trunk is located on either the same node or on another node.

3 The attendant dials a Trunk Steering Code, Special Number or Route Access Code to access the public network and waits for the lighting of the DEST lamp on the console.

If the attendant dials either a Trunk Steering Code or a Special Number and the external trunk is an ISDN trunk, it must support Overlap Signaling. If the attendant dials a Route Access Code and the outgoing external is an type ISDN trunk then any type of dialing is supported.

4 When the DEST lamp is lit, then the attendant presses the Release (RLS) key or another loop key to extend the call back to the calling party requesting an outgoing external trunk.

5 The calling party hears dial tone and dials the external number.

DASS2/DPNSS1 INIT Call Cut Off

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During a system initialization, the Meridian 1 maintains all calls established prior to the initialization.While the Meridian 1 system protects established calls, some third party switches can tear down active calls due to the resetting of data links in Layer 2.

The DASS2/DPNSS1 INIT Call Cut Off feature maintains established calls during a system initialization when the Meridian 1 is connected to third party Private Branch Exchanges (PBX) with DASS2/DPNSS1.

For this feature, the Meridian 1 initialization procedures are modified to prevent the following: LED from lighting and a disable message from being sent to the DASS2/DPNSS1 Dual D-channel Daughterboard (NTAG54).The Meridian 1 averts the disable message in Layer 2. This prevents the third party PBX from sending a the Clear Request Message (CRM). On some third party PBX's the Clear Request Message is interpreted as a reset of Layer 3 which also leads to the resetting of Network Layer 3. In the event that Layer 3 is reset, all established calls would be cleared by some third party PBX's.

When the DASS2/DPNSS1 INIT Call Cut Off feature is configured, the Dual D-channel Daughterboard (NTAG54) is prevented from sending Layer 2 network messages in relating to alarms handled during initialization. When the Meridian 1 initializes, all established calls are preserved when connected to third party PBX's with DASS2/DPNSS1.

If this feature is configured on older hardware such as NT6011, NT5K75 and NT3K35, then the software message is still sent to the hardware. However, the hardware does not respond like the Dual D-channel Daughterboard (NTAG54). Instead, the hardware becomes disabled.

Operating parameters

This feature is not applicable to the Meridian 1 Option 11C.

DASS2/DPNSS1 INIT Call Cut Off requires the following hardware: NTAG54AA and NTCK43AB.

The NTAG54AA is a Dual D-channel Daughterboard that supports DASS2/DPNSS1 with the Dual Primary Rate Interface (PRI) NTCK43AB vintage or higher.

This feature is not supported over Analog Private Network Signal Systems (APNSS) because of the Dual D-channel Daughterboard hardware requirement.

After system initialization is complete, the existing maintenance procedures attempt to enable all Dual D-channel Daughterboard (NTAG54) cards.

Feature interactions

There are no feature interactions associated with this feature.

Feature packaging

DASS2/DPNSS1 INIT Call Cut Off requires Integrated Digital Access (IDA) package 122. Depending on signaling type, **one** the following packages is also required:

- Digital Private Network Signaling System 1 (DPNSS) package 123
- Digital Access Signaling System 2 (DASS2) package 124

Feature implementation

LD 74 – Modify the Digital Private Network System Signaling No.1 link data block.

Prompt	Response	Description
REQ	CHG	Change existing data.
TYPE	DDLS	Digital Private Network System Signaling No.1 link data block.
...		
S2	(0)-1	Switch 2 mode (the mode selected with the switch S2 located on the NT5K75AA DCHI cards) where: 0 = NT5K35AA DCHI or NT5K75AA DCHI cards operating in standard mode (default) 1 = NT5K75AA DCHI card operating in expanded mode.
DDSL	0-n	DPNSS link number where: n = 63 for NT5K35AA or NT5K75AA in standard mode (S2 = 0) n =159 for NT5K75AA in expanded mode (S2 = 1).
SIGL	DA	DASS2 Level 2 Signaling.
DDCS	0-159	Digital Trunk Channel Switch loop number.
PRIV	(YES) NO	Private link: DPNSS1 DASS2
- SIDE	aaa	Side for termination where: aaa = AETBNT for DPNSS1 or BNT for DASS2.
- MWIF	(STD) ISDM	Message Waiting Indication.
- L2_RST	(YES) NO	Reset Layer 2 indication during system initialization. NO should only be entered when using the Dual D-channel Daughterboard (NTAG54) on a D-channel Primary Rate Interface (NTCK43) card. If this prompt is set to NO on an NTG011 or NT5K75 type card, the card will be left disabled after INIT occurs.

Feature operation

No specific operating procedures are required to use this feature.

Virtual Network Services in the UK with DASS2/DPNSS1 Bearers

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Reference list

The following are the references in this section:

- *DPNSS1: Product Overview Guide* (553-3921-100)

The Virtual Network Services in the UK with DASS2/DPNSS1 Bearers feature introduces VNS in the UK using Digital Private Network Signaling System No.1 (DPNSS1) or Digital Access Signaling System No.2 (DASS2) trunks as VNS Bearer trunks.

Operating parameters

All of the operating parameters that pertain to the Basic VNS feature also apply to the Virtual Network Services with DASS2/DPNSS1 Bearers feature. The following parameters also apply:

Analog Private Networking Signaling System (APNSS) trunks cannot function as VNS Bearer trunks.

No DPNSS1 features are provided when DPNSS1 trunks are used as a VNS Bearer trunk. ISDN features are provided instead. If any of the DPNSS1 Supplementary Service features requires a DPNSS1 route, it cannot use a VNS route.

If ESN is configured, a route list entry with both VNS and DPNSS1 is not chosen.

For DPNSS1/VNS gateway nodes in mixed DASS2/DPNSS1 and VNS networks, the gateway nodes are subject to the same feature support and limitations as the standard DPNSS1/ISDN gateway without VNS. If there is no DPNSS1/ISDN gateway, the feature will be stopped at the DPNSS1/VNS node.

Feature interactions

Analog Private Networking Signaling System

Analog Private Networking Signaling System (APNSS) trunks cannot function as VNS Bearer trunks.

Data calls

Data calls are supported on DPNSS1 or DASS2 VNS Bearer trunks if the DPNSS1 or DASS2 VNS Bearer trunks are configured to support data calls. Similarly, data calls are supported on DPNSS1 or DASS2 Bearer trunks in VNS to DPNSS1/DASS2 gateways, if the DPNSS1 or DASS2 VNS Bearer trunks are configured to support data calls.

DPNSS1 Attendant Call Offer

DPNSS1 Attendant Call Offer is not supported over VNS Bearer trunks (DPNSS1 Attendant Call Offer allows an attendant-extended call, routed over a DPNSS1 trunk, to be camped-on to a remote busy extension). Standard ISDN Camp-on may be provided instead, if NAS is configured over the VNS Bearer trunks.

DPNSS1 Attendant Timed Reminder Recall and Attendant Three-Party Service

DPNSS1 Attendant Timed Reminder Recall and Attendant Three-Party Service are not supported over VNS Bearer trunks. If NAS is configured over the VNS Bearer trunks, NAS call extension and Attendant Recall will be offered instead.

DPNSS1 Call Back When Free and Call Back When Next Used

DPNSS1 Call Back When Free and Call Back When Next Used are not supported over VNS Bearer trunks. Network Ring Again or Network Ring Again on No Answer may be provided instead, if Network Ring Again or Network Ring Again on No Answer are configured over the VNS Bearer trunks.

DPNSS1 Diversion

DPNSS1 Diversion is not supported over VNS Bearer trunks. Network Call Redirection and Trunk Route Optimization can be provided instead, if configured over the VNS D-channel.

DPNSS1 Extension Three-Party Service

DPNSS1 Extension Three-Party Service is not supported over VNS Bearer trunks. Network Call Redirection and Trunk Route Optimization can be provided instead, if configured over the VNS D-channels.

DPNSS1 Loop Avoidance

DPNSS1 Loop Avoidance is not supported over VNS Bearer trunks (DPNSS1 Loop Avoidance prevents a call from being looped through a DPNSS1 network by placing a limit on the number of channels that a call can use). The ISDN Call Connection Limitation is provided, if it is configured over the VNS D-channel.

DPNSS1 Route Optimization

DPNSS1 Route Optimization is not supported over VNS Bearer trunks.

DPNSS1 Route Optimization/ISDN Trunk Anti-Tromboning Interworking

ISDN Trunk Anti-Tromboning may be applied to the VNS part of the call, if configured on the VNS D-channel.

DPNSS1 Step Back On Congestion

DPNSS1 Step Back On Congestion handles high traffic situations when congestion is encountered by DPNSS1 trunks. The following scenarios apply for interworking with VNS.

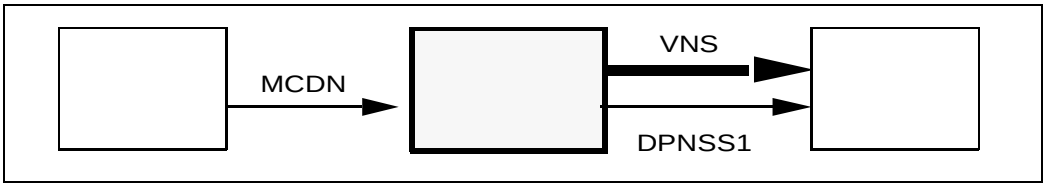
Homogeneous Networks

DPNSS1 Step Back On Congestion is supported over VNS Bearer trunks, if all the transit nodes within the DPNSS1 network used for VNS are configured accordingly:

- In LD 86, if the SBOC (Step Back On Congestion) prompt is set to NRR (No Reroute) or RRO (Reroute Originator), then it would be sufficient that the VNS originating node be configured with either RRO (Reroute Originator) or RRA (Reroute All).
- In LD 86, if the SBOC (Step Back On Congestion) prompt is set to RRA (Reroute All) for a transit node, then the different alternative routes at this node must be configured with VNS and must be configured as VNS Bearers.

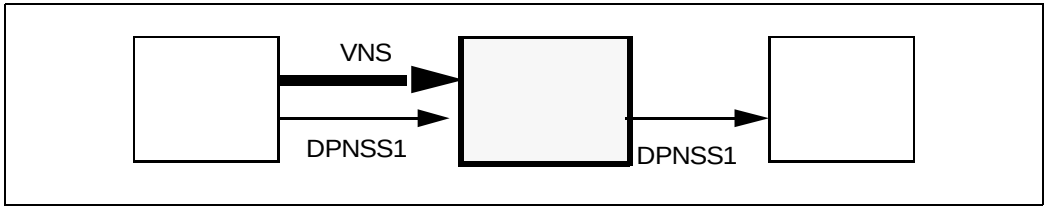
Hybrid Networks

Figure 2
MCDN/VNS with DPNSS1 node:



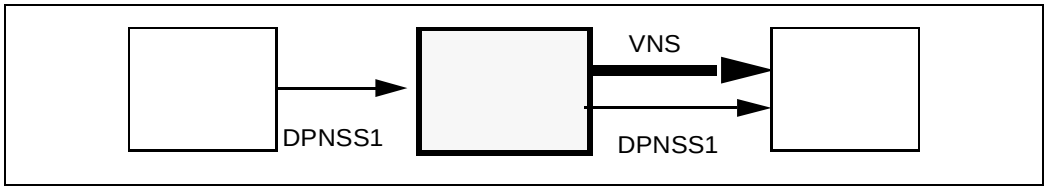
- If a congestion is encountered inside the VNS portion of the path, the node behaves as an MCDN/MCDN tandem. The ISDN Drop Back Busy (IDBB) and ISDN Off-Hook Queuing (IOHQ) are transmitted, so that they may be applied further along the VNS portion of the path, or at the tandem node.
- If a congestion is encountered within the DPNSS1 network, the VNS portion of the call is cleared and the disconnection is propagated back to the originating side of the MCDN path. Neither Drop Back Busy nor Off-Hook Queuing is activated at the tandem node, even if IDBB or IOHQ are activated.

Figure 3
VNS with DPNSS1/DPNSS1 node:



This scenario is considered as an MCDN/DPNSS1 gateway. The functionality is the same as for the Step Back on Congestion feature, as documented in *DPNSS1: Product Overview Guide* (553-3921-100).

Figure 4
DPNSS1/VNS with DPNSS1 node:



- If a congestion is encountered inside the VNS portion of the path, the VNS portion of the call is cleared and the disconnection is propagated back to the originating DPNSS1 side. The Step Back on Congestion feature is then invoked, if it is configured.
- If a congestion is encountered within the DPNSS1 portion of the path, with the DPNSS1 trunk being used as a VNS Bearer, the VNS portion of the call is cleared and a normal disconnection is propagated back to the originating DPNSS1 side. The Step Back on Congestion feature is not invoked, even if it is configured.

DPNSS1 Executive Intrusion

DPNSS1 Extension Three-Party Service is not supported over VNS Bearer trunks. Attendant Break-in may be provided instead, if NAS is configured over the VNS Bearer trunks.

Standalone Meridian Mail

Standalone Meridian Mail is not supported over VNS Bearer trunks. A mailbox user may access Meridian Mail, if ISDN Network Message Services is configured.

DPNSS1 Enhancements for ISDN Interworking

The Release 20B software introduced enhancements to allow DPNSS1 to interwork with QSIG and EuroISDN. At an ISDN gateway, ISDN information may be carried into some DPNSS1 messages, if DPNSS_189I package 284 is equipped.

DPNSS1/DASS2 to ISDN PRI Gateway

A VNS call over a DPNSS1 or DASS2 Bearer trunk of an DPNSS1/DASS2 to ISDN PRI Gateway acts as the ISDN leg of the Gateway.

Feature packaging

For total functionality, this feature requires the following packages:

- Virtual Network Services (VNS) package 183
- Network Alternative Route Selection (NARS) package 58
- Network Class of Service (NCOS) package 32
- Basic Routing (BRTE) package 14
- Integrated Services Digital Networking (ISDN) package 145
- ISDN Signaling Link (ISL) package 147
- Advanced Network Services (NTWK) package 148
- Integrated Digital Access (IDA) package 122
- 2 MBit Primary Rate Interface (PRI2) package 154
- Digital Private Network Signaling System No.1 (DPNSS) package 123, for routes using DPNSS1 signaling
- Digital Access Signaling System No.2 (DASS2) package 124, for routes using DASS2 signaling

For ISDN to DPNSS1/DASS2 gateway:

- International Supplementary Features (SUPP) package 131
- Network Attendant Service (NAS) package 159

For the Step Back on Congestion Supplementary Service feature:

- DPNSS1 Network Services (DNWK) package 231

The following packages may also be used:

- Universal ISDN Gateway (UIGW) package 283
- ISDN SIS (BTNR-I on DPNSS1), (DPNSS1_189I) package 284

Feature implementation

LD 17 – Configure the VNS D-channel to be associated with the VNS route.
The D-channel must be associated with each node and customer (both ends of the D-channel link must be configured).

Prompt	Response	Description
REQ	CHG END	Change data, or exit the Overlay.
TYPE	ADAN	Action Device and Number.
ADAN	CHG DCH 0-63 CHG DCH 0-15	Change the D-channel for Options 51C, 61C, 81, 81C. Change the D-channel for Option 11C.
USR	VNS SHAV	VNS=Dedicated D-channel SHAV=Shared D-channel.
VNSM	0-300	The maximum number of VNS channels supported by the D-channel. This is the potential VNS capability for the D-channel, and is not associated with any other restriction placed on the VNS capability, such as the number of VNS Virtual DNs.
VNSC	0-99 0-31	Customer Number for Options 51C, 61C, 81, 81C. Customer Number for Option 11C. At least one D-channel must be configured with USR=VNS or USR=SHAV.

VNSP	0-32700	Private Network Identifier (PNI) of the far-end customer.
VCNA	(NO) YES	Network Call Party Name Display is (not) available over the D-channel.
VCRD	(NO) YES	Network Call Redirection is (not) available over the D-channel.
VTRO	(NO) YES	Trunk Route optimisation Before Answer is (not) available over the D-channel.

LD 96 – Enable the D-channel that has been configured in LD 17.

Prompt...	**Response**	**Description**
	ENL DCH 0-63 ENL DCH 0-15	Enable the D-channel 0-63 for Options 51C, 61C, 81, 81C. Enable the D-channel 0-15 for Option 11C.

LD 79 – Define the VNS DNs for both nodes/customers to be associated with the D-channel configured in LD 17.
You can add a new individual VDN to an existing VNS VDN block, or create a new VNS VDN block.

Prompt	**Response**	**Description**
REQ	NEW	Add an individual VDN to Create a new VNS data block.
TYPE	VNS	Virtual Network Services.
CUST	XX	Customer Number for Options 51C, 61C, 81, 81C. 0-99. Customer Number for Option 11C. 0-31. At least one D-channel must be configured with USR=VNS or USR=SHAV and having VNS=customer number.
VNDN	xxxxxxx 1-4000 xxxxxxx	Individual VDN to be added. 1-4000=number of contiguous VDN to be added, xxxxxxx=first VDN to be added.
	<CR>	You can add another single VDN by entering <CR> (VDN is prompted until <CR> is entered.) For the above entries, the VDNs must be part of the customer's numbering plan.

LD 16 – Set up the VNS Bearer Trunk.
The Bearer trunk must be associated with each node and customer (both ends of the Bearer link must be configured).

Prompt	Response	Description
REQ	NEW, CHG	Add, or change data.
CUST	XX	Customer Number for Options 51C, 61C, 81, 81C. 0-99. Customer Number for Option 11C. 0-31. At least one D-channel must be configured with USR=VNS or USR=SHAV, in LD 17.
ROUT	0-511	The number of the route to be associated with the VNS Bearer Channel.
CNTL	YES	Change controls or timers.
TIMR	VSS (0),1,2-1023	0=Do not answer the Bearer channel until the terminating party answers. 1=Answer the Bearer channel immediately on arrival. 2-1023=Answer the Bearer Channel after specified seconds (rounded down to multiple of two seconds) if the terminating party has not already answered.
TIMR	VGD 0-(6)-31	Enter the guard timer on the associated VNS DN (the time allowed for the Bearer trunk call to disconnect, in seconds)
VRAT	(NO),YES	(Do not) immediately answer the attendant extended VNS call on the incoming Bearer trunk.

LD 86 – Configure the VNS trunk route.

Prompt	Response	Description
REQ	NEW CHG	Add, or change data.
CUST	XX	Customer Number for Options 51C, 61C, 81, 81C. 0-99. Customer Number for Option 11C. 0-31.
FEAT	RLB	Route list data block feature.

RLI	0-MXRL	The Route List Index to be associated with the VNS Bearer Channel.
ENTR	0-63	The entry within the Route List Index to be associated with the VNS Bearer Channel.
ROUT	0-511	The number of the Route to be associated with the VNS Bearer Channel.
VNS	YES	Virtual Network Services.
- VDCH	0-63 0-15	The D-channel used for VNS call for Options 51C, 61C, 81, 81C. The D-channel used for VNS call for Option 11C. At least one D-channel must be configured with USR = VNS or USR = SHAV, in LD 17.
- VDMI		VNS Digit Manipulation Table to be used on the VNS D-channel.
	(0) 1-31 1-255 0-999	0 = None 1-31 = with CDP. 1-255 = with NARS/BARS. 0-999 = with Flexible Numbering Plan.
- VTRK	1-(20)-100	Number of VNS trunks allowed on the VNS route.
...		
DMI		VNS Digit Manipulation Table to be used on the VNS Bearer.
	(0) 1-31 1-255 0-999	0 = None. 1-31 = with CDP. 1-255 = with NARS/BARS. 0-999 = with Flexible Numbering Plan.

Feature operation

No specific operating procedures are required to use this feature.

Meridian 1 and Succession Communication Server for Enterprise 1000

DASS2

Features and Services Guide

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